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21 *Attorneys for Plaintiff Sound View Innovations, LLC*

22 **IN THE UNITED STATES DISTRICT COURT  
FOR THE CENTRAL DISTRICT OF CALIFORNIA  
WESTERN DIVISION**

23 SOUND VIEW INNOVATIONS, LLC,

24 Plaintiff,

25 v.

26 HULU, LLC,

27 Defendant.

28 Case No. 2:17-cv-04146

**JURY TRIAL DEMANDED**

29 **COMPLAINT FOR PATENT INFRINGEMENT**

30 Plaintiff Sound View Innovations, LLC (“Sound View”), for its Complaint for Patent  
31 Infringement against Hulu, LLC (“Hulu”), alleges as follows:

32 **INTRODUCTION**

33 1. Sound View is an intellectual property licensing company. Sound View’s patent  
34 portfolio includes more than 900 active and pending patents worldwide, including approximately  
35 475 active U.S. Patents. Sound View’s patents were developed by researchers at Alcatel Lucent

1 (“Lucent”) and its predecessors. Lucent is home to the world-renowned Bell Laboratories, which  
 2 has a long and storied history of innovation. Researchers at Lucent’s Bell Laboratories have  
 3 developed a wide variety of key innovations that have greatly enhanced the capabilities and utility of  
 4 computer systems and networks. This has resulted in benefits such as better and more efficient  
 5 computer networking, computer security, and user experiences.

6. Patents enjoy the same fundamental protections as real property. Sound View, like  
 7 any property owner, is entitled to insist that others respect its property and to demand compensation  
 8 from those who take it for their own use. Hulu has used, and continues to use, Sound View’s  
 9 patents. Moreover, despite Sound View’s repeated attempts to negotiate, Hulu refuses to take a  
 10 license, but continues to use Sound View’s property.

#### 11 NATURE OF THE CASE

12. This action arises under 35 U.S.C. § 271 for Hulu’s infringement of Sound View’s  
 13 United States Patent Nos. 5,806,062 (the “062 patent”), 6,125,371 (the “371 patent”), 6,502,133  
 14 (the “133 patent”), 6,708,213 (the “213 patent”), 6,757,796 (the “796 patent”), and 9,462,074 (the  
 15 “074 patent”) (collectively, the “Patents-In-Suit”).

#### 16 THE PARTIES

17. Plaintiff Sound View is a Delaware limited liability company, with its principal place  
 18 of business at 2001 Route 46, Waterview Plaza, Suite 310, Parsippany, New Jersey 07054.

19. Defendant Hulu is a Delaware limited liability company, with its principal place of  
 20 business at 2500 Broadway, 2nd Floor, Santa Monica, California 90404. Hulu may be served with  
 21 process by serving its registered agent, C T Corporation System, 818 West Seventh Street, Suite 930,  
 22 Los Angeles, California 90017.

#### 23 JURISDICTION AND VENUE

24. This action arises under the patent laws of the United States, including 35 U.S.C. §  
 25 271 *et seq.* The jurisdiction of this Court over the subject matter of this action is proper under 28  
 26 U.S.C. §§ 1331 and 1338(a).

27. This Court has personal jurisdiction over Hulu because, among other things: Hulu has  
 28 its principal place of business in this judicial district; Hulu has committed, aided, abetted,

1 contributed to and/or participated in the commission of acts giving rise to this action within the State  
2 of California and this judicial district and has established minimum contacts within the forum such  
3 that the exercise of jurisdiction over Hulu would not offend traditional notions of fair play and  
4 substantial justice; Hulu has placed products and services that practice the claims of the Patents-in-  
5 Suit into the stream of commerce with the reasonable expectation and/or knowledge that actual or  
6 potential users of such products and/or services were located within this judicial district; and Hulu  
7 has sold, advertised, solicited customers, marketed and distributed its services that practice the  
8 claims of the Patents-in-Suit in this judicial district.

9       8.     Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b),  
10    at least because Hulu has its principal, regular, and established place of business in this judicial  
11    district, at 2500 Broadway, 2nd Floor, Santa Monica, CA 90404. Moreover, Hulu commits (directly  
12    and/or indirectly) acts of infringement in this judicial district, including at least through the provision  
13    and use of its website and services from its offices in this judicial district, and through its direction  
14    of, control of, and entry into contracts with content delivery networks, such as Akamai  
15    Technologies, Inc., Limelight Networks Inc., and Level 3 Communications, LLC, from its offices in  
16    this judicial district.

## THE PATENTS-IN-SUIT

18 9. Sound View incorporates by reference the preceding paragraphs as if fully set forth  
19 herein.

20       10.     The '062 patent, titled "Data Analysis System Using Virtual Databases," was duly  
21 and properly issued by the United States Patent and Trademark Office ("USPTO") on September 8,  
22 1998. A copy of the '062 patent is attached hereto as Exhibit A.

23 11. Sound View is the owner and assignee of the '062 patent and holds the right to sue  
24 for and recover all damages for infringement thereof, including past infringement.

25        12. The '371 patent, titled "System and Method For Aging Versions of Data in a Main  
26 Memory Database," was duly and properly issued by the USPTO on September 26, 2000. A copy of  
27 the '371 patent is attached hereto as Exhibit B.

13. Sound View is the owner and assignee of the '371 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

14. The '133 patent, titled "Real-Time Event Processing System With Analysis Engine Using Recovery Information," was duly and properly issued by the USPTO on December 31, 2002. A copy of the '133 patent is attached hereto as Exhibit C.

15. Sound View is the owner and assignee of the '133 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

16. The '213 patent, titled "Method For Streaming Multimedia Information Over Public Networks," was duly and properly issued by the USPTO on March 16, 2004. A copy of the '213 patent is attached hereto as Exhibit D.

17. Sound View is the owner and assignee of the '213 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

18. The '796 patent, titled "Method and System For Caching Streaming Live Broadcasts Transmitted Over a Network," was duly and properly issued by the USPTO on June 29, 2004. A copy of the '796 patent is attached hereto as Exhibit E.

19. Sound View is the owner and assignee of the '796 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

20. The '074 patent, titled "Method and System for Caching Streaming Multimedia on the Internet," was duly and properly issued by the USPTO on October 4, 2016. A copy of the '074 patent is attached hereto as Exhibit F.

21. Sound View is the owner and assignee of the '074 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

## BACKGROUND FACTS

22. On October 10, 2016, Sound View sent a letter notifying Hulu of its infringement of six patents, including the '371, '133, and '213 patents. Sound View notified Hulu of representative Hulu features that infringe those patents and explained its intention to allow Hulu to continue to use the inventions covered in those patents through a license from Sound View. Sound View further requested a meeting to discuss the matter in more detail.

23. Hulu did not respond to Sound View's October 10, 2016 letter.

24. On March 28, 2017, Sound View sent an additional letter, including its October 10, 2016 letter and additionally notifying Hulu of its infringement of the '074 patent. Sound View notified Hulu of representative Hulu features that infringe that patent and explained its intention to allow Hulu to continue to use the inventions covered in that patent through a license from Sound View. Sound View further requested a meeting to discuss the matter in more detail. Sound View sent a follow up email on April 3, 2017.

25. On April 6, 2017, Hulu responded to Sound View's March 28, 2017 letter by requesting information about Sound View's licensees.

26. On April 20, 2017, Sound View responded to Hulu's letter and requested a meeting with Hulu to present claim charts detailing Hulu's infringement of Sound View's patents and to discuss an amicable resolution.

27. On April 20, 2017, Hulu responded, asking to postpone the proposed meeting to an undetermined time in the future.

28. On May 2, 2017, Hulu requested claim charts evidencing Hulu's infringement of Sound View's patents.

29. On May 22, 2017, Sound View provided Hulu with claim charts further detailing Hulu's infringement.

30. To date, Hulu has refused to engage in any meaningful discussion about reaching a licensing agreement to end its infringement of Sound View's patents. Instead, Hulu continues to knowingly, intentionally, and willfully infringe Sound View's patents so as to obtain their significant benefits without paying any compensation to Sound View. Sound View has no other choice but to seek relief through litigation.

## COUNT ONE

## INFRINGEMENT OF THE '062 PATENT

31. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

1       32. The '062 patent generally relates to customizable data processing applications that  
2 rely on a combination of reusable software operators, such as initial operators, query operators,  
3 terminal operators, and/or external operators, to process source information from a virtual database  
4 in a particular schema, such as HTML or XML, and transform that source information into another  
5 virtual database having the same schema.

6       33. The '062 patent is valid and enforceable.

7       34. Various types of documents may be stored in a computer system, such as word  
8 processing files, computer programs, HTML documents, financial files, employee files, etc. When  
9 dealing with large or complex files, it is often desirable to analyze or alter the structure and content  
10 of the documents; for example, comparing a first version to a second version, or analyzing  
11 dependency relationships between various sections of computer code.

12       35. In order to aid such analysis, a database may be constructed which contains  
13 information describing the structure of the documents. Various database queries may be performed  
14 to extract and process information describing the structure of the source documents. A collection of  
15 source documents, along with an associated database that describes the structure of the documents, is  
16 called a repository.

17       36. To analyze source document information, it is necessary to process information  
18 contained in the repository. A computer program that extracts or converts information from a  
19 repository is called an operator. Thus, an operator receives a source document and/or a database as  
20 input, processes the input, and produces some output. A simple example of an operator is a program  
21 that takes a source document as input and counts the number of occurrences of a particular word, and  
22 outputs a number containing the number of times the particular word occurs. The overall function of  
23 the analysis—in the above example, a count of the number of occurrences of a particular word—is  
24 called an application.

25       37. At the time of the invention of the '062 patent, in existing repository analysis  
26 systems, operators were designed for single applications. Thus, the user indicated which operator  
27 he/she wished to apply to the repository, and the system processed the repository accordingly. The  
28 user was presented with the output when the processing was finished. Different operators processed

1 the repository in different manners, but there was no convenient mechanism for combining the  
2 various operators to create new applications. Thus, when a new application was desired, a new  
3 operator would need to be designed from scratch.

4       38. Prior art repository analysis systems generally were closed systems, in that all  
5 operators were applied within the confines of the system, and all database accesses were performed  
6 within the system. For example, a repository analysis system operator may have produced as output  
7 a file containing information about the structure of a computer program. In conventional closed  
8 systems, this output could not be further processed by, for example, an external graphics program  
9 that would format the output in a desired manner. Instead, the output could only be formatted  
10 according to operators that were internal to the repository system. There was no convenient  
11 mechanism to allow the repository analysis system to communicate with operators that were external  
12 to the system.

13       39. The inventors of the '062 patent solved these discrete computer-based problems by  
14 providing an apparatus and method for creating data analysis applications using reusable software  
15 operators. For example, query operators receive data in a particular virtual database format, process  
16 the data in the virtual database, and output the results of the processing in another virtual database  
17 that has the same format as the original virtual database. A plurality of query operators can be  
18 combined to customize the processing of the data. In addition, initial operators convert source  
19 information into the virtual database format so that the query operators can analyze the source data.  
20 External operators take an external format as input and create another external format as output.  
21 Also, terminal operators are used to convert a virtual database into an external format. A user can  
22 combine initial, query, terminal, and external operators to create customizable data processing  
23 applications.

24       40. Creating data analysis applications using reusable software operators, as described in  
25 the '062 patent, is particularly useful in that the external format data may be processed in various  
26 ways, thus allowing flexible presentation of the analysis results.

27       41. Hulu's platforms, web pages, and servers have used the Document Object Model  
28 ("DOM") to create and process customizable data analysis and processing applications. The DOM

1 is an application programming interface (“API”) that allows documents to be modelled using objects  
2 of a variety of data formats, including HTML and XML. It defines the logical structure of  
3 documents and the way a document is accessed and manipulated.

4 42. Using the DOM, the nodes (or objects) of every document are organized in a tree  
5 structure, called the “DOM tree,” and can be manipulated individually using the DOM methods (or  
6 operators). With the DOM, programmers can build documents, navigate their structure, and add,  
7 modify, or delete elements and content. Anything found in an HTML or XML document can be  
8 manipulated in this way using the DOM, with a few exceptions.

9 43. As an object model, the DOM identifies: (1) the interfaces and objects used to  
10 represent and manipulate a document; (2) the semantics of these interfaces and objects – including  
11 both behavior and attributes of the relationships; and (3) collaborations among these interfaces and  
12 objects.

13 44. jQuery is a DOM manipulation library that makes it easier to use JavaScript on a  
14 website by taking more complex code needed to manipulate the DOM and wrapping the code into  
15 simpler methods that can be called with smaller amounts of JavaScript.

16 45. Hulu has used jQuery throughout its products and services, including its webpages  
17 such as hulu.com.

18 46. Hulu has infringed one or more claims of the ’062 patent under 35 U.S.C. § 271(a),  
19 literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale  
20 in the United States, and/or importing into the United States, products and/or methods encompassed  
21 by those claims, including for example, by making, using, selling, offering for sale, and/or importing  
22 its Hulu platforms, including for example its web pages and servers that use and have used jQuery.

23 47. On May 22, 2017, Sound View informed Hulu that at least its use of the DOM  
24 infringed the ’062 patent.

25 48. For example, Hulu has infringed claim 14 by using a method for processing  
26 information (such as Hulu’s applications, web pages, and/or servers that use and have used jQuery)  
27 comprising the steps of:

a. providing a plurality of software operators (such as jQuery methods, including, for example, “.append( ),” “.clone( ),” “.attr( ),” and “.wrap( )”) each configured to receive a virtual database (such as DOM nodes (or objects) or web pages, describing the structure of a document) having a first schema (such as HTML or XML), for processing information contained in said virtual database (such as by applying a jQuery method to a node in the DOM tree), and for outputting a virtual database having said first schema; and

b. combining at least two of said software operators to create an application (such as that used to construct and serve Hulu's web pages).

49. Sound View has been damaged by Hulu's infringement of the '062 patent. Sound View is entitled to recover from Hulu the damages sustained by Sound View as a result of Hulu's wrongful acts in an amount adequate to compensate Sound View for Hulu's infringement subject to proof at trial.

## **COUNT TWO**

## **INFRINGEMENT OF THE '371 PATENT**

50. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

51. The '371 patent generally relates to an improved multi-versioned database management system and method that creates multiple versions of data records affected by update transactions and increases capacity of memory by deleting versions of data records in response to associated time stamps and a measurable characteristic of the memory. In the context of the '371 patent, "measurable characteristics of the memory" are a current utilization or capacity of memory, a trend analysis of a utilization or capacity of memory over a time period, or any other applied mathematics- or statistics-based analysis, including a comparison of any of the same with a threshold, ceiling/floor, limit, set point, or the like.

52. The '371 patent is valid and enforceable.

53. Database managers (“DBMs”) have long been used in computer systems to manage large amounts of data. A DBM is a control application that supervises or manages interactions between application tasks and a database. The ’371 patent inventors recognized that two important

1 DBM functions are to ensure (i) data recovery (in response to a database crash caused by, for  
2 example, a power outage or a program crash), and (ii) data integrity. Data recovery involves  
3 rebuilding at least part of a database after all or part of its data is corrupted or lost, based on the last  
4 known valid or uncorrupted state. With respect to data integrity, latency in DBMs was largely  
5 intolerable. Latency refers to the time differential between a request for data and subsequent receipt  
6 of data. Latency is largely impacted by the type of computer memory on which the database is  
7 stored. There are two classifications of computer memory, volatile memory and non-volatile  
8 memory. Volatile memory is memory which does not retain data after power is lost, and is typically  
9 characterized by fast access to data. Non-volatile memory is memory that retains data after power is  
10 lost and is typically characterized by slower access to data. As a general matter, volatile memory is  
11 more expensive than non-volatile memory. Early computer database systems were divided among  
12 main (volatile) memory and disk (non-volatile memory). Those disk-based DBMs frequently failed  
13 to meet the performance requirements of contemporary information management systems because of  
14 the latencies inherent with non-volatile memory transactions.

15 54. One popular method to solve that latency problem was to map the entire database into  
16 the main memory. For data integrity purposes, however, those conventional main memory DBMs  
17 had to delay the processing of update transactions. For example, the conventional main memory  
18 DBMs had to prevent an update transaction from modifying a data record while another process was  
19 simultaneously relying on that data record. In order to reduce conflicts between update transactions  
20 and read-only transactions, contemporary databases created multiple versions of data records, known  
21 as multi-versioning. In those multi-version DBMs, read-only transactions were given consistent, but  
22 out-of-date views of certain data records or data record types.

23 55. Although those multi-versioning techniques reduced “waits” and conflicts among  
24 transactions, they conflicted with DBM efforts to utilize main memory capacity efficiently because  
25 main memory continuously expended processing resources collecting data record versions that were  
26 no longer needed. The '371 patent solved this computer-based problem—that of lacking an efficient  
27 means to reclaim main memory space no longer used by multi-version techniques—by logically and  
28

1 economically aging data record versions in the database. The '371 patent inventions extend to, and  
2 provide benefits to, DBMs that utilize secondary or mass storage as opposed to main memory.

3 56. In particular, to solve this discrete computer-centric problem, the '371 patent teaches  
4 a system that includes each of a time stamping controller, a versioning controller and an aging  
5 controller. The time stamping controller assigns a time stamp to transactions to be performed on the  
6 database, and may be assigned as a function of a time stamp counter. The time stamp operates to  
7 preserve an order of the transactions. The versioning controller creates multiple versions of data  
8 records of the database that are affected by update transactions. The aging controller, which may be  
9 associated, directly or indirectly, with each of the time stamping and versioning controllers, monitors  
10 at least one measurable characteristic and deletes prior ones of the multiple data record versions in  
11 response to the time stamp and the at least one measurable characteristic to thereby increase the data  
12 capacity of the database, thus increasing memory capacity.

13 57. Hulu uses and has used a distributed database known as Cassandra for video progress  
14 tracking within Hulu's video streaming systems, as well as other services, including social data from  
15 users, messaging, and the ability to use a mobile device to send traffic to a connected device.

16 58. The Cassandra database is stored in a memory comprising a combination of  
17 "memtable" and "SSTable." A memtable is a Cassandra table-specific, in-memory data structure  
18 that resembles a write-back cache. A sorted string table (SSTable) is an immutable data file to  
19 which Cassandra writes memtables periodically. SSTables are stored on disk sequentially and  
20 maintained for each Cassandra table.

21 59. During a write transaction, a timestamp is assigned to the transaction performed on  
22 the Cassandra database.

23 60. Cassandra databases utilize periodic compaction to manage the accumulation of  
24 SSTables.

25 61. Cassandra databases have configurable parameters (such as min\_threshold and  
26 max\_threshold parameters) that control when a minor compaction occurs.

27 62. Hulu has infringed one or more claims of the '371 patent under 35 U.S.C. § 271(a),  
28 literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale

1 in the United States, and/or importing into the United States, products and/or methods encompassed  
 2 by those claims, including for example, by making, using, selling, offering for sale, and/or importing  
 3 servers and products that include or use applications based on Cassandra, such as Hulu's servers that  
 4 track its users' video watching progress.

5 63. On October 10, 2016 and May 22, 2017, Sound View informed Hulu that its systems  
 6 and applications infringe the '371 patent. However, Hulu has not stopped infringing.

7 64. For example, Hulu infringes claim 8 by using a method of operating a processing  
 8 system (such as Hulu's servers) for use with a database of data records (such as a Cassandra  
 9 database), said database stored in a memory, comprising the steps of:

10 a. assigning a time stamp to transactions to be performed on said database (such  
 11 as a timestamp assigned during a write transaction);

12 b. creating multiple versions of ones of said data records affected by said  
 13 transactions that are update transactions (such as the new timestamped version of an updated row in  
 14 the database);

15 c. monitoring a measurable characteristic of said memory (such as a  
 16 measurement associated with a min\_threshold or max\_threshold parameter); and

17 d. deleting ones of said multiple versions of said ones of said data records in  
 18 response to said time stamp and said measurable characteristic thereby to increase a capacity of said  
 19 memory (such as by performing a compaction process in response to the min\_threshold parameter  
 20 being met or exceeded).

21 65. Sound View has been damaged by Hulu's infringement of the '371 patent. Sound  
 22 View is entitled to recover from Hulu the damages sustained by Sound View as a result of Hulu's  
 23 wrongful acts in an amount adequate to compensate Sound View for Hulu's infringement subject to  
 24 proof at trial.

25 66. In committing these acts of infringement, Hulu committed egregious misconduct  
 26 including, for example, acting despite knowing that its actions constituted infringement of a valid  
 27 patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of  
 28 infringement of a valid and enforceable patent.

67. Hulu's infringement of the '371 patent was and is deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

## **COUNT THREE**

## **INFRINGEMENT OF THE '133 PATENT**

68. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

69. The '133 patent generally relates to real-time event processing in applications such as telecommunications and computer networks, and more particularly, to a method, apparatus, and system for processing events in a real-time analysis engine, and storing recovery information in a main-memory database system associated with the real-time analysis engine.

70. The '133 patent is valid and enforceable.

71. At the time of the invention of the '133 patent, high performance real-time event processing applications had performance requirements that could not be met by conventional general purpose database management systems. For example, some real-time event processing applications required the service time for such events to not exceed a few milliseconds. However, with conventional database technology, the service time costs of invoking a structured query language operation over a client-server interface, or the service time costs associated with a single access to secondary storage, could account for hundreds of milliseconds. These limitations led real-time event processing applications instead to rely on the use of custom database systems.

72. These custom database systems had disadvantages: (1) there was a high cost of developing and maintaining custom systems; (2) those high costs could not be amortized across a number of different applications; and (3) custom database systems were generally inflexible and difficult to adapt to unforeseen or evolving requirements.

73. At the time of the invention of the '133 patent, a need therefore existed for an improved real-time event processing system that could provide the performance benefits of custom database systems, but without sacrificing the flexibility and maintainability typically associated with conventional general-purpose database systems.

1       74. The inventors of the '133 patent solved that discrete computer-based problem and  
2 improved upon the existing real-time event processing systems by providing a real-time event  
3 processing system that avoids the problems associated with custom systems.

4       75. Using a real-time analysis engine operating in the manner described by the '133  
5 patent is particularly useful because it can provide transactional access to persistent data, but at the  
6 speed of a main-memory system, and it also incorporates a recovery model which stores recovery  
7 information in order to facilitate roll-back to a recovery point after a failure.

8       76. In accordance with the '133 patent, recovery information regarding a recovery point  
9 for a given real-time analysis engine may be stored in a memory portion of the main-memory  
10 database system. This way, the real-time event processing system provides a critical path for event  
11 processing that is specifically designed for high performance, while also retaining many desirable  
12 features of conventional database systems, including high-level, declarative programming interfaces,  
13 and the transactional correctness properties of atomicity, consistency, isolation and durability. These  
14 features of the '133 patent enhance the reliability, robustness, usability and maintainability of the  
15 real-time event processing system and any applications built thereon.

16       77. Hulu uses and has used frameworks known as Apache Storm ("Storm") to perform  
17 stream processing of events in real-time and continuous data processing, including database updates  
18 and processing messages. Those systems' architecture is composed of three components: (1)  
19 "Streams," which are unbounded sequences of tuples that are processed; (2) "Spouts," which are  
20 sources of streams, and (3) "Bolts," which are responsible for processing the Streams in real-time.

21       78. Those systems are integrated with Hulu's infrastructure, such as its database systems,  
22 messaging systems, and monitoring/alerting systems. Events are generated by various Hulu system  
23 applications, such as discovery, real-time analytics, personalization, search, and revenue  
24 optimization. When these system applications generate events, these events are grouped into  
25 Streams.

26       79. Spouts emit Streams into the topology, so that they can subsequently be processed.

1       80.    Bolts are real-time analysis engines that process the Streams.  Bolts are capable of  
2 performing simple stream transformations, and multiple Bolts are used for more complex stream  
3 transformations.

4       81.    Hulu's use of Storm enables Hulu to process billions of events per day.

5       82.    Those systems have the capability to save and retrieve in-memory the state of the  
6 Bolts.  For example, Storm has a default in-memory based state implementation and also a Redis  
7 backed implementation that provides state persistence.  This main-memory database within Storm  
8 has the function known as state management, allowing it to automatically and periodically take  
9 snapshots of the state of the Bolts.

10      83.    Hulu has infringed one or more claims of the '133 patent under 35 U.S.C. § 271(a),  
11 literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale  
12 in the United States, and/or importing into the United States, products and/or methods encompassed  
13 by those claims, including for example, by making, using, selling, offering for sale, and/or importing  
14 servers and products, such as Hulu's servers used for real-time analytics and real-time processing,  
15 that include or use applications based on Storm.

16      84.    On October 10, 2016 and May 22, 2017, Sound View informed Hulu that its systems  
17 and applications infringe the '133 patent.  However, Hulu has not stopped infringing.

18      85.    For example, Hulu infringes claim 13 by using a method of processing events (such  
19 as Streams) generated by at least one system application (such as Hulu's database systems, analytics  
20 systems, and monitoring/alerting systems), the method comprising the steps of:

21           a.    processing the events in at least one real-time analysis engine (such as a Bolt);  
22 and

23           b.    storing in a main-memory database system (such as Storm's default in-  
24 memory based state implementation) associated with the real-time analysis engine recovery  
25 information regarding a recovery point for the real-time analysis engine (such as the state  
26 information relating to the Bolt's state).

27      86.    Sound View has been damaged by Hulu's infringement of the '133 patent.  Sound  
28 View is entitled to recover from Hulu the damages sustained by Sound View as a result of Hulu's

wrongful acts in an amount adequate to compensate Sound View for Hulu's infringement subject to proof at trial.

87. In committing these acts of infringement, Hulu committed egregious misconduct including, for example, acting despite knowing that its actions constituted infringement of a valid patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

88. Hulu's infringement of the '133 patent was and is deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

## **COUNT FOUR**

## **INFRINGEMENT OF THE '213 PATENT**

89. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

90. The '213 patent generally relates to streaming multimedia data (e.g., audio and video data) over the Internet and other networks, and, more specifically, to methods and systems to improve caching of streaming multimedia data from a content provider over a network to a client's computer.

91. The '213 patent is valid and enforceable.

92. At the time of the invention of the '213 patent, multimedia data could either be downloaded by the client or streamed over the network to the client. Streaming eliminated the need for the client to wait for the downloading to complete before watching or listening to the multimedia data. However, with conventional unicast connections, streaming posed problems to content providers in that server load increased linearly with the number of clients, to Internet service providers in that streaming caused network congestion problems, and to clients in that streaming often resulted in high start-up latency and unpredictable playback quality.

93. Conventional caching systems attempted to address network congestion, but these were unsuitable for streaming multimedia data: (1) video files were typically too large to be cached in their entirety, so only a few streams could be stored at a cache; (2) breaking video files into

1 smaller pieces was not feasible because the caching systems would treat different chunks from the  
2 same video object independently; and (3) streaming multimedia has temporal characteristics, like the  
3 transmission rate, while conventional caching was only capable of handling static web objects.

4 94. The inventors of the '213 patent solved those discrete computer-based problems and  
5 improved upon conventional caching techniques by providing a novel architecture and method for  
6 supporting high quality live and on-demand streaming multimedia on network systems using helper  
7 servers.

8 95. The techniques described in the '213 patent advantageously reduce server and  
9 network loads by employing helper servers with dynamic data transfer rate control to overcome  
10 arrival time and range heterogeneity in client requests, thereby improving the quality perceived by  
11 end users making requests for streaming media objects.

12 96. The '213 patent has been recognized with the 2013 Edison Patent Award in  
13 Multimedia Technology for inventing "fundamental concepts and techniques to design content  
14 distribution networks and caching systems originally built for text and images to better support  
15 streaming media over the Internet." A press release regarding the award is attached as Exhibit G.

16 97. A content delivery network, also called a content distribution network (CDN), is a  
17 network of connected computers that delivers internet content, such as streaming video, to end users.  
18 When a service, such as Hulu, uses a CDN, the content comes from an "origin server" and is  
19 replicated on numerous "edge servers." When an end user requests particular content, the CDN  
20 provides the content from an edge server near to the end user. This arrangement has numerous  
21 benefits, such as: faster response time (lower latency) because the content is served from a nearby  
22 edge server, instead of a potentially distant origin server; greater throughput because the edge server  
23 will be less loaded than a single origin server would be; and greater availability because the  
24 multiplicity of servers allows for a request to be failed over to another server if an edge server  
25 crashes.

26 98. Hulu provides and has provided streaming services, including at least Hulu and Hulu  
27 Plus (the "'213 Services"), to allow users to watch streaming video. Hulu provides streaming video  
28 services to its users utilizing content delivery networks, including at least Akamai Technologies, Inc.

1 (“Akamai”), Limelight Networks Inc. (“Limelight”), Level 3 Communications, LLC (“Level 3”),  
2 and Fastly Inc. (“Fastly”) (collectively, “the CDNs”). The ’213 Services provide video that is  
3 encoded using certain protocols, including the HTTP Live Streaming (“HLS”) protocol and the  
4 MPEG-DASH protocol.

5       99.      HLS is an HTTP-based media streaming communications protocol. It works by  
6 breaking the overall stream into a sequence of small HTTP-based file downloads; each download is  
7 one short chunk that is part of an overall potentially unbounded transport stream. As the stream is  
8 played, the client may select from a number of different alternate chunks containing the same  
9 material encoded at a variety of data rates.

10      100.     MPEG-DASH is an adaptive bitrate streaming technique that enables high quality  
11 streaming of media content over the Internet delivered from conventional HTTP web servers.  
12 Similar to HLS, MPEG-DASH works by breaking the content into a sequence of small HTTP-based  
13 file segments, each segment containing a short interval of playback time of content that is potentially  
14 many hours in duration, such as a live broadcast of a sports event. The content is made available at a  
15 variety of different bit rates, with alternative segments encoded at different bit rates covering aligned  
16 short intervals of playback time.

17      101.     Hulu has been actively involved in the promotion and industry adoption of MPEG-  
18 DASH, through for example its involvement with the DASH Industry Forum, of which it is a  
19 Contributor Member.

20      102.     The CDNs, including Akamai, Limelight, Level 3, and Fastly, each support Hulu’s  
21 delivery of video content to users using MPEG-DASH and/or HLS. Moreover, each of the CDNs  
22 openly advertises and promotes the use of those protocols to deliver video content to users.

23      103.     Knowing that each of the CDNs supports the delivery of video content using MPEG-  
24 DASH and/or HLS, and directing and controlling such support, Hulu delivers video streams to its  
25 users, including the ’213 Services, using at least the Akamai, Limelight, Level 3, and Fastly CDNs  
26 by transcoding videos into MPEG-DASH segments with different bit rates, and providing those  
27 segments to each of the CDNs. The CDNs store those MPEG-DASH segments in caches, and send  
28 them to Hulu users who request to view the video files.

1       104. Hulu contracts or has contracted with each of the CDNs, so that when at least certain  
2 Hulu users request a video stream, the request is routed to one of the edge servers of the CDN, which  
3 receives the request. The edge server then allocates a local buffer to store portions of the stream.

4       105. Hulu had and has the ability to configure and/or customize aspects of the operation of  
5 each of the CDNs in delivering content to its users. For example, Hulu can and has customized the  
6 operation of the Akamai CDN through configuration tools, such as Akamai's Luna Control Center.  
7 As a further example, Hulu can and has customized the operation of the Limelight CDN through  
8 configuration tools, such as Limelight Control. As a further example, Hulu can and has customized  
9 the operation of the Level 3 CDN through configuration tools, such as Level 3 CDN Portal.

10       106. At least through contracting with Akamai and configuring and/or customizing aspects  
11 of the operation of the Akamai CDN, Hulu has knowledge of the operations of the Akamai CDN and  
12 the steps the Akamai systems will perform in order to deliver content to Hulu's users. Hulu thus  
13 knowingly causes and specifically intends for Akamai to perform those steps, or directs and controls  
14 Akamai's performance of these steps by means of at least its contractual relationship with Akamai  
15 and by configuring and customizing Akamai's CDN.

16       107. For example, utilizing Akamai's CDN requires storing segments in a local buffer on  
17 an edge server, and at least by entering into a contractual relationship with Akamai, Hulu knowingly  
18 intends for Akamai to do so, or directs and controls Akamai (either implicitly or explicitly) to do so.  
19 Hulu intends for, or directs, the Akamai edge server to request the MPEG-DASH or HLS segments  
20 from a datacenter cache, store them in the local buffer, and send them to Hulu users who view the  
21 video. Further, Hulu intends for, or directs, the edge server to store data in the buffer so that its end  
22 users can receive content with a lower latency.

23       108. While the Akamai edge server sends the requested segments to the user, it  
24 concurrently requests the next few segments in the stream from the datacenter cache or from the  
25 cache of another server. By doing so, the content can be streamed smoothly without pauses for  
26 buffering. Akamai advertises this process as "pre-fetching." Hulu intends for and contracts with  
27 Akamai to use pre-fetching so that its users can receive content without pauses for buffering. Hulu  
28 and other customers have the ability to configure the size of the segments to be fetched in the

1 Akamai system. The Akamai CDN, as configured and customized by Hulu, also allows Hulu users  
2 to receive content without pauses for buffering by allowing end users to send byte range requests to  
3 the edge server.

4 109. While the content is being played back by an MPEG-DASH or HLS client, the client  
5 automatically selects the next segment to download and play based on current network conditions.  
6 The streaming server then provides the requested alternate segment, resulting in the server adjusting  
7 the data rate. Hulu intends for and controls the Akamai CDN to adjust the data rate by directing,  
8 controlling, and/or inducing Akamai to provide the content on its CDN at different data rates.

9 110. As a further example, at least through contracting with Limelight and configuring  
10 and/or customizing aspects of the operation of the Limelight CDN, Hulu has knowledge of the  
11 operations of the Limelight CDN and the steps the Limelight systems will perform in order to deliver  
12 content to Hulu's users. Hulu thus knowingly causes and specifically intends for Limelight to  
13 perform those steps, or directs and controls Limelight's performance of those steps by means of at  
14 least its contractual relationship with Limelight and by configuring and customizing Limelight's  
15 CDN.

16 111. For instance, utilizing Limelight's CDN requires storing segments in a local buffer on  
17 an edge server, and at least by entering into a contractual relationship with Limelight, Hulu  
18 knowingly intends for Limelight to do so, or directs and controls Limelight (either implicitly or  
19 explicitly) to do so. Hulu intends for, or directs, the Limelight edge server to request the MPEG-  
20 DASH or HLS segments from a datacenter cache, store them in the local buffer, and send them to  
21 Hulu users who view the video. Further, Hulu intends for, or directs, the edge server to store data in  
22 the buffer so that its end users can receive content with a lower latency.

23 112. While the Limelight edge server sends the requested segments to the user, it  
24 concurrently requests the next few segments in the stream from the datacenter cache or from the  
25 cache of another server. By doing so, the content can be streamed smoothly without pauses for  
26 buffering. Hulu intends for and contracts with (or has contracted with) Limelight to deliver content  
27 in this manner so that its users can receive content without pauses for buffering. Hulu and other  
28 customers have the ability to configure the size of the segments to be fetched in the Limelight

1 system. The Limelight CDN, as configured and customized by Hulu, also allows Hulu users to  
2 receive content without pauses for buffering by allowing end users to send byte range requests to the  
3 edge server.

4 113. While the content is being played back by an MPEG-DASH or HLS client, the client  
5 automatically selects from the alternatives the next segment to download and play based on current  
6 network conditions. The streaming server then provides the requested alternate segment, resulting in  
7 the server adjusting the data rate. Hulu intends for and controls the Limelight CDN to adjust the  
8 data rate by directing, controlling, and/or inducing Limelight to provide the content on its CDN at  
9 different data rates.

10 114. As a further example, at least through contracting with Level 3 and configuring  
11 and/or customizing aspects of the operation of the Level 3 CDN, Hulu has knowledge of the  
12 operations of the Level 3 CDN and the steps the Level 3 systems will perform in order to deliver  
13 content to Hulu's users. Hulu thus knowingly causes and specifically intends for Level 3 to perform  
14 those steps, or directs and controls Level 3's performance of those steps by means of at least its  
15 contractual relationship with Level 3 and by configuring and customizing Level 3's CDN.

16 115. For instance, utilizing Level 3's CDN requires storing segments in a local buffer on  
17 an edge server, and at least by entering into a contractual relationship with Level 3, Hulu knowingly  
18 intends for Level 3 to do so, or directs and controls Level 3 (either implicitly or explicitly) to do so.  
19 Hulu intends for, or directs, the Level 3 edge server to request the MPEG-DASH or HLS segments  
20 from a datacenter cache, store them in the local buffer, and send them to Hulu users who view the  
21 video. Further, Hulu intends for, or directs, the edge server to store data in the buffer so that its end  
22 users can receive content with a lower latency.

23 116. While the Level 3 edge server sends the requested segments to the user, it  
24 concurrently requests the next few segments in the stream from the datacenter cache or from the  
25 cache of another server. By doing so, the content can be streamed smoothly without pauses for  
26 buffering. Hulu intends for and contracts with Level 3 to deliver content in this manner so that its  
27 users can receive content without pauses for buffering. Hulu and other customers have the ability to  
28 configure the size of the segments to be fetched in the Level 3 system. The Level 3 CDN, as

1 configured and customized by Hulu, also allows Hulu users to receive content without pauses for  
 2 buffering by allowing end users to send byte range requests to the edge server.

3       117. While the content is being played back by an MPEG-DASH or HLS client, the client  
 4 automatically selects from the alternatives the next segment to download and play based on current  
 5 network conditions. The streaming server then provides the requested alternate segment, resulting in  
 6 the server adjusting the data rate. Hulu intends for and controls the Level 3 CDN to adjust the data  
 7 rate by directing, controlling, and/or inducing Level 3 to provide the content on its CDN at different  
 8 data rates.

9       118. Hulu directly infringes one or more claims of the '213 patent (including at least claim  
 10 16) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing  
 11 and/or controlling at least the performance of the claimed steps by Akamai, Limelight, and Level 3  
 12 to infringe the '213 patent to deliver the '213 Services.

13       119. For example, Hulu has directly infringed, and continues to directly infringe, claim 16  
 14 of the '213 patent under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at  
 15 least by directing and/or controlling Akamai to deliver the '213 Services. For example, Hulu has  
 16 directly infringed, and continues to directly infringe, claim 16 of the '213 patent under 35 U.S.C. §  
 17 271(a) literally and/or under the doctrine of equivalents, at least by directing and/or controlling  
 18 Akamai (through at least contracting with Akamai and customizing the Akamai CDN) to infringe  
 19 claim 16 by using a method of reducing latency in a network having a content server which hosts  
 20 streaming media ("SM") objects (such as videos) which comprise a plurality of time-ordered  
 21 segments (such as HLS or MPEG-DASH segments) for distribution over said network through a  
 22 plurality of helpers ("HSs") (such as Akamai cache or edge servers) to a plurality of clients (such as  
 23 users of the '213 Services). Further:

24           a.       Hulu directs and/or controls Akamai, at least via its contract with Akamai  
 25 and/or its configuration and customization of Akamai's CDN, to receive a request for an SM object  
 26 from one of said plurality of clients (such as a user of one of the '213 Services requesting to watch a  
 27 hosted video) at one of said plurality of helper servers (such as by directing and/or controlling one of

1 the Akamai cache or edge servers to receive such a request from a user of one of the '213 Services to  
2 watch a hosted video);

3 b. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
4 and/or its configuration and customization of Akamai's CDN, to allocate a buffer at one of said  
5 plurality of HSs to cache at least a portion of said requested SM object (such as by directing and/or  
6 controlling Akamai to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH  
7 segments at the Akamai cache or edge servers);

8 c. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
9 and/or its configuration and customization of Akamai's CDN, to download said portion of said  
10 requested SM object to said requesting client, while concurrently retrieving a remaining portion of  
11 said requested SM object from one of another HS and said content server (such as by directing  
12 and/or controlling the Akamai cache or edge server to pre-fetch the next segment of video content by  
13 requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, and/or  
14 by directing and/or controlling the Akamai cache or edge server to be capable of receiving a byte  
15 range request in order to download a segment of a requested video stream to a client while  
16 concurrently downloading the next segments from another server); and

17 d. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
18 and/or its configuration and customization of Akamai's CDN and/or its provision of content encoded  
19 at multiple bitrates, to adjust a data transfer rate at said one of said plurality of HSs for transferring  
20 data from said one of said plurality of helper servers to said one of said plurality of clients (such as  
21 by directing and/or controlling Akamai to provide alternate segments encoded at different data rates  
22 to the client to accommodate the current network conditions (e.g., the client's current bandwidth),  
23 and then providing the requested alternate segment resulting in an adjusted data rate).

24 120. As a further example, Hulu also has directly infringed, and continues to directly  
25 infringe, one or more claims of the '213 patent (including at least claim 16) under 35 U.S.C.  
26 § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling  
27 Limelight to infringe the '213 patent to deliver the '213 Services. For example, Hulu has directly  
28 infringed, and continues to directly infringe, claim 16 of the '213 patent under 35 U.S.C. § 271(a),

literally and/or under the doctrine of equivalents, at least by directing and/or controlling Limelight (through at least contracting with Limelight and customizing the Limelight CDN) to infringe claim 16 by using a method of reducing latency in a network having a content server which hosts SM objects (such as videos) which comprise a plurality of time-ordered segments (such as HLS or MPEG-DASH segments) for distribution over said network through a plurality of HSs (such as Limelight cache or edge servers) to a plurality of clients (such as users of the '213 Services).

Further:

a. Hulu directs and/or controls Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to receive a request for an SM object from one of said plurality of clients (such as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of helper servers (such as by directing and/or controlling one of the Limelight cache or edge servers to receive such a request from a user of one of the '213 Services to watch a hosted video);

b. Hulu directs and/or controls Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to allocate a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as by directing and/or controlling Limelight to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH segments at the Limelight cache or edge servers);

c. Hulu directs and/or controls Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to download said portion of said requested SM object to said requesting client, while concurrently retrieving a remaining portion of said requested SM object from one of another HS and said content server (such as by directing and/or controlling the Limelight cache or edge server to pre-fetch the next segment of video content by requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, and/or by directing and/or controlling the Limelight cache or edge server to be capable of receiving a byte range request in order to download a segment of a requested video stream to a client while concurrently downloading the next segments from another server); and

d. Hulu directs and/or controls Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN and/or its provision of content encoded at multiple bitrates, to adjust a data transfer rate at said one of said plurality of HSs for transferring data from said one of said plurality of helper servers to said one of said plurality of clients (such as by directing and/or controlling Limelight to provide alternate segments encoded at different data rates to the client to accommodate the current network conditions (e.g., the client's current bandwidth), and then providing the requested alternate segment resulting in an adjusted data rate).

121. As a further example, Hulu also has directly infringed, and continues to directly infringe, one or more claims of the '213 patent (including at least claim 16) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Level 3 (through at least contracting with Level 3 and customizing the Level 3 CDN) to infringe the '213 patent to deliver the '213 Services. For example, Hulu has directly infringed, and continues to directly infringe, claim 16 of the '213 patent under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Level 3 to infringe claim 16 by using a method of reducing latency in a network having a content server which hosts SM objects (such as videos) which comprise a plurality of time-ordered segments (such as HLS or MPEG-DASH segments) for distribution over said network through a plurality of HSs (such as Level 3 cache or edge servers) to a plurality of clients (such as users of the '213 Services). Further:

a. Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to receive a request for an SM object from one of said plurality of clients (such as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of helper servers (such as by directing and/or controlling one of the Level 3 cache or edge servers to receive such a request from a user of one of the '213 Services to watch a hosted video);

b. Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to allocate a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as by directing and/or

1 controlling Level 3 to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH  
2 segments at the Level 3 cache or edge servers);

3                   c. Hulu directs and/or controls Level 3, at least via its contract with Level 3  
4 and/or its configuration and customization of Level 3's CDN, to download said portion of said  
5 requested SM object to said requesting client, while concurrently retrieving a remaining portion of  
6 said requested SM object from one of another HS and said content server (such as by directing  
7 and/or controlling the Level 3 cache or edge server to pre-fetch the next segment of video content by  
8 requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, and/or  
9 by directing and/or controlling the Level 3 cache or edge server to be capable of receiving a byte  
10 range request in order to download a segment of a requested video stream to a client while  
11 concurrently downloading the next segments from another server); and

12                   d. Hulu directs and/or controls Level 3, at least via its contract with Level 3  
13 and/or its configuration and customization of Level 3's CDN and/or its provision of content encoded  
14 at multiple bitrates, to adjust a data transfer rate at said one of said plurality of HSs for transferring  
15 data from said one of said plurality of helper servers to said one of said plurality of clients (such as  
16 by directing and/or controlling Level 3 to provide alternate segments encoded at different data rates  
17 to the client to accommodate the current network conditions (e.g., the client's current bandwidth),  
18 and then providing the requested alternate segment resulting in an adjusted data rate).

19                   122. In addition or in the alternative, Hulu has induced infringement, and continues to  
20 induce infringement, of one or more claims of the '213 patent under 35 U.S.C. § 271(b), literally  
21 and/or under the doctrine of equivalents. Hulu has actively, knowingly, and intentionally induced  
22 (and continues to induce) infringement of the '213 patent by making, using, offering for sale, selling,  
23 supplying, maintaining, and/or supporting the '213 Services; by contracting with the CDNs and  
24 customizing the CDNs with the specific intent to cause the CDNs to perform the steps claimed in the  
25 '213 patent to deliver video data, including the '213 Services, to Hulu's users, and with the  
26 knowledge that such actions infringe the '213 patent.

27                   123. For example, at least through repeated correspondence from Sound View, Hulu  
28 knows that at least Akamai, Limelight, and Level 3 perform the claimed methods of the '213 patent

1 to deliver the '213 Services, and that Hulu induces the infringement of each of those CDNs. (See  
 2 Exhibit H, incorporated herein by reference.) Moreover, Hulu specifically intends that infringement,  
 3 at least by continuing to contract with and utilize the Akamai, Limelight, and Level 3 CDNs to offer  
 4 the '213 Services; configuring the Akamai, Limelight, and Level 3 CDNs to perform the claimed  
 5 methods of the '213 patent; and by encouraging and facilitating their infringement through the use of  
 6 the '213 Services by Hulu's users and/or the creation and dissemination of documentation related to  
 7 the '213 Services, including by, for example, encouraging and instructing its agents and contractors,  
 8 such as Akamai, Limelight, and Level 3, to provide video to Hulu's users through the '213 Services,  
 9 causing the performance of the claimed methods with the knowledge that such actions infringe the  
 10 '213 patent.

11       124. For example, Hulu intends for and induces Akamai to infringe claim 16 to deliver the  
 12 '213 Services by using a method of reducing latency in a network having a content server which  
 13 hosts SM objects (such as videos) which comprise a plurality of time-ordered segments (such as  
 14 HLS or MPEG-DASH segments) for distribution over said network through a plurality of HSs (such  
 15 as Akamai cache or edge servers) to a plurality of clients (such as users of the '213 Services). Hulu  
 16 further intends for and induces Akamai to:

17           a. receive a request for an SM object from one of said plurality of clients (such  
 18 as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of  
 19 helper servers (such as one of the Akamai cache or edge servers, with knowledge that Akamai's  
 20 cache or edge servers will receive such a request from a user of one of the '213 Services to watch a  
 21 hosted video);

22           b. allocate a buffer at one of said plurality of HSs to cache at least a portion of  
 23 said requested SM object (such as by inducing Akamai to allocate a local buffer to store portions of  
 24 the stream as HLS or MPEG-DASH segments at the Akamai cache or edge servers, with knowledge  
 25 that Akamai's CDN will allocate such a buffer at one of the Akamai cache or edge servers to store  
 26 portions of the stream as HLS or MPEG-DASH segments);

27           c. download said portion of said requested SM object to said requesting client,  
 28 while concurrently retrieving a remaining portion of said requested SM object from one of another

1 HS and said content server (such as the Akamai cache or edge server pre-fetching the next segment  
2 of video content by requesting the next HLS or MPEG-DASH segments in the stream from the  
3 datacenter cache, with knowledge that Akamai's cache or edge servers will pre-fetch the next  
4 segment of video by requesting the next HLS or MPEG-DASH segment in the stream from the  
5 datacenter cache); and

6                   d.        adjust a data transfer rate at said one of said plurality of HSs for transferring  
7 data from said one of said plurality of helper servers to said one of said plurality of clients (such as  
8 providing alternate segments encoded at different data rates to the client to accommodate the current  
9 network conditions (e.g., the client's current bandwidth), and then providing the requested alternate  
10 segment resulting in an adjusted data rate, with knowledge that the Akamai CDN will provide  
11 alternate segments encoded at different data rates to the client).

12       125. As a further example, Hulu intends for and induces Limelight to infringe claim 16 to  
13 deliver the '213 Services by using a method of reducing latency in a network having a content server  
14 which hosts SM objects (such as videos) which comprise a plurality of time-ordered segments (such  
15 as HLS or MPEG-DASH segments) for distribution over said network through a plurality of HSs  
16 (such as Limelight cache or edge servers) to a plurality of clients (such as users of the '213  
17 Services). Hulu further intends for and induces Limelight to:

18                   a.        receive a request for an SM object from one of said plurality of clients (such  
19 as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of  
20 helper servers (such as one of the Limelight cache or edge servers, with knowledge that Limelight's  
21 cache or edge servers will receive such a request from a user of one of the '213 Services to watch a  
22 hosted video);

23                   b.        allocate a buffer at one of said plurality of HSs to cache at least a portion of  
24 said requested SM object (such as by inducing Limelight to allocate a local buffer to store portions  
25 of the stream as HLS or MPEG-DASH segments at the Limelight cache or edge servers, with  
26 knowledge that Limelight's CDN will allocate such a buffer at one of the Limelight cache or edge  
27 servers to store portions of the stream as HLS or MPEG-DASH segments);

c. download said portion of said requested SM object to said requesting client, while concurrently retrieving a remaining portion of said requested SM object from one of another HS and said content server (such as the Limelight cache or edge server pre-fetching the next segment of video content by requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, with knowledge that Limelight's cache or edge servers will pre-fetch the next segment of video by requesting the next HLS or MPEG-DASH segment in the stream from the datacenter cache); and

d. adjust a data transfer rate at said one of said plurality of HSs for transferring data from said one of said plurality of helper servers to said one of said plurality of clients (such as providing alternate segments encoded at different data rates to the client to accommodate the current network conditions (e.g., the client's current bandwidth), and then providing the requested alternate segment resulting in an adjusted data rate, with knowledge that the Limelight CDN will provide alternate segments encoded at different data rates to the client).

126. As a further example, Hulu intends for and induces Level 3 to infringe claim 16 to deliver the '213 Services by using a method of reducing latency in a network having a content server which hosts SM objects (such as videos) which comprise a plurality of time-ordered segments (such as HLS or MPEG-DASH segments) for distribution over said network through a plurality of HSSs (such as Level 3 cache or edge servers) to a plurality of clients (such as users of the '213 Services). Hulu further intends for and induces Level 3 to:

a. receive a request for an SM object from one of said plurality of clients (such as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of helper servers (such as one of the Level 3 cache or edge servers, with knowledge that Level 3's cache or edge servers will receive such a request from a user of one of the '213 Services to watch a hosted video);

b. allocate a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as by inducing Level 3 to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH segments at the Level 3 cache or edge servers, with knowledge

1 that Level 3's CDN will allocate such a buffer at one of the Level 3 cache or edge servers to store  
 2 portions of the stream as HLS or MPEG-DASH segments);

3                   c. download said portion of said requested SM object to said requesting client,  
 4 while concurrently retrieving a remaining portion of said requested SM object from one of another  
 5 HS and said content server (such as the Level 3 cache or edge server pre-fetching the next segment  
 6 of video content by requesting the next HLS or MPEG-DASH segments in the stream from the  
 7 datacenter cache, with knowledge that Level 3's cache or edge servers will pre-fetch the next  
 8 segment of video by requesting the next HLS or MPEG-DASH segment in the stream from the  
 9 datacenter cache); and

10                   d. adjust a data transfer rate at said one of said plurality of HSs for transferring  
 11 data from said one of said plurality of helper servers to said one of said plurality of clients (such as  
 12 providing alternate segments encoded at different data rates to the client to accommodate the current  
 13 network conditions (*e.g.*, the client's current bandwidth), and then providing the requested alternate  
 14 segment resulting in an adjusted data rate, with knowledge that the Level 3 CDN will provide  
 15 alternate segments encoded at different data rates to the client).

16       127. Sound View has been and continues to be damaged by Hulu's infringement of the  
 17 '213 patent. Sound View is entitled to recover from Hulu the damages sustained by Sound View as  
 18 a result of Hulu's wrongful acts in an amount adequate to compensate Sound View for Hulu's  
 19 infringement subject to proof at trial.

20       128. In committing these acts of infringement, Hulu committed egregious misconduct  
 21 including, for example, acting despite knowing that its actions constituted infringement of a valid  
 22 patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of  
 23 infringement of a valid and enforceable patent.

24       129. Hulu's infringement of the '213 patent was and is deliberate and willful, entitling  
 25 Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in  
 26 prosecuting this action under 35 U.S.C. § 285.

## COUNT FIVE

## **INFRINGEMENT OF THE '796 PATENT**

130. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

131. The '796 patent generally relates to real-time multimedia applications, and more specifically, to methods and systems for decreasing the playback delay at a client computer of a live streaming broadcast transmitted over a network.

132. The '796 patent is valid and enforceable.

133. At the time of the invention of the '796 patent, live broadcasting of streaming multimedia over the Internet (including through movie broadcasts, television, sports, talk and music radio, business events, seminars, and tutorials) was becoming increasingly popular.

134. Streaming data involves sending a continuous transmission of data from the server to a client. At the client computer, received data is buffered in a cache memory and continuously processed as soon as, or soon after, being received by the client. The client computer creates a multimedia output from the received multimedia data. The advantage of streaming is that the client computer does not have to wait until all data is downloaded from the server before some of the data is processed and the multimedia output is created.

135. Because multimedia applications involve transferring large amount of information, such systems place a considerable load on the resources of the network, server, and client. As more people accessed network-based multimedia applications, there was an increased demand for longer, more complicated, more flexible multimedia applications.

136. Multicast technology was developed for scaling live broadcasts. However, one problem that such technology did not address was that of start-up latency, *i.e.*, the delay between the client requesting multimedia playback and the beginning of the playback on the client.

137. The techniques described in the '796 patent solve that discrete computer-based problem and improve upon prior caching systems to better support the live broadcasting of streaming multimedia over the Internet and other network systems. In particular, the '796 provides novel systems and methods for supporting high quality live streaming multimedia broadcasts on a network

1 by using helper servers which operate as caching and streaming agents inside the network to enhance  
2 caching and reduce playback delay without sacrificing perceived playback quality. To allow the  
3 client's buffer to be filled faster (and thus allow playback to start faster), a playout history buffer is  
4 allocated and maintained at the helper server in response to a client request for a particular live  
5 streaming media broadcast. The playout history buffer operates as a moving window of fixed size  
6 that advances with the live broadcast stream, storing the last few seconds of the datastream. An  
7 advantage of utilizing playout history buffers is that as subsequent client requests are received at the  
8 helper server for a live streaming media broadcast which is currently being stored in a previously  
9 allocated playout history buffer in response to a former request, each subsequent request can be  
10 serviced directly from the playout history buffer thereby reducing start up latency. An advantage in  
11 streaming data packets to each client is realized by virtue of having some number of them pre-stored  
12 in the playout history buffer. When a request is received at the helper server, the stored packets are  
13 immediately available for distribution to the requesting client.

14 138. Servicing subsequent requests from the playout history buffer prevents the need to  
15 individually service each subsequent request from the content server as a unicast datastream, which  
16 reduces network congestion by redirecting requests to the helper server. Also, the playout history  
17 buffer (which may be considered a form of short term dynamic cache) allows the cached data to be  
18 made immediately available to a requesting client to fill the client's playout buffer as rapidly as  
19 possible.

20 139. Hulu provides and has provided live streaming services, including at least Hulu Live  
21 (the "'796 Services") to allow users to watch live streaming video.

22 140. The CDNs, including Akamai, Limelight, Level 3, and Fastly, each support Hulu's  
23 delivery of video content to users using MPEG-DASH and/or HLS. Moreover, each of the CDNs  
24 openly advertises and promotes the use of those protocols to deliver video content to users.  
25 Knowing that each of the CDNs supports the delivery of video content using MPEG-DASH and/or  
26 HLS, and directing or controlling such support, Hulu delivers the '796 Services to its users using at  
27 least the Akamai, Limelight, Level 3, and Fastly CDNs by transcoding videos into MPEG-DASH  
28 and/or HLS segments.

1       141. Hulu contracts or has contracted with each of the CDNs, so that when at least certain  
2 Hulu users request a '796 Services video stream, the request is routed to one of the edge servers of  
3 the CDN, which receives the request. Moreover, Hulu had and has the ability to configure and/or  
4 customize aspects of the operation of each of the CDNs in delivering content to its users. For  
5 example, Hulu can and has customized the operation of the Akamai CDN through configuration  
6 tools, such as Akamai's Luna Control Center. As a further example, Hulu can and has customized  
7 the operation of the Limelight CDN through configuration tools, such as Limelight Control. As a  
8 further example, Hulu can and has customized the operation of the Level 3 CDN through  
9 configuration tools, such as Level 3 CDN Portal.

10       142. For example, at least through contracting with Akamai and configuring and/or  
11 customizing aspects of the operation of the Akamai CDN, Hulu has knowledge of the operations of  
12 the Akamai CDN and the steps the Akamai systems will perform in order to deliver content to  
13 Hulu's users. Hulu thus knowingly causes and specifically intends for Akamai to perform those  
14 steps, or directs and controls Akamai's performance of these steps by means of at least its  
15 contractual relationship with Akamai and by configuring and customizing Akamai's CDN.

16       143. For example, Hulu contracts with Akamai knowing that when at least certain Hulu  
17 users request a '796 Services live stream, the request is routed to an Akamai edge server, which  
18 receives the request, and that the Akamai edge server allocates a local buffer to store portions of the  
19 stream. Hulu contracts with Akamai also knowing that when a second user requests the same video  
20 stream, the Akamai edge server will provide the stream from the same local buffer, because  
21 Akamai's edge servers serve the second request from the same local buffer because doing so saves  
22 space and bandwidth. Hulu's contract with Akamai thus implicitly or explicitly directs and controls  
23 Akamai to serve a second request for the same stream from the same local buffer. Because the  
24 Akamai edge server already has the requested stream in a local buffer, it takes less time to send it to  
25 the second user.

26       144. As a further example, at least through contracting with Limelight and configuring  
27 and/or customizing aspects of the operation of the Limelight CDN, Hulu has knowledge of the  
28 operations of the Limelight CDN and the steps the Limelight systems will perform in order to deliver

1 content to Hulu's users. Hulu thus knowingly causes and specifically intends for Limelight to  
2 perform those steps, or directs and controls Limelight's performance of those steps by means of at  
3 least its contractual relationship with Limelight and by configuring and customizing Limelight's  
4 CDN.

5 145. For instance, Hulu contracts or has contracted with Limelight knowing that when at  
6 least certain Hulu users request a '796 Services live stream, the request is routed to a Limelight edge  
7 server, which receives the request, and that the Limelight edge server allocates a local buffer to store  
8 portions of the stream. Hulu contracts with Limelight also knowing that when a second user  
9 requests the same video stream, the Limelight edge server will provide the stream from the same  
10 local buffer, because Limelight's edge servers serve the second request from the same local buffer  
11 because doing so saves space and bandwidth. Hulu's contract with Limelight thus implicitly or  
12 explicitly directs and controls Limelight to serve a second request for the same stream from the same  
13 local buffer. Because the Limelight edge server already has the requested stream in a local buffer, it  
14 takes less time to send it to the second user.

15 146. As a further example, at least through contracting with Level 3 and configuring  
16 and/or customizing aspects of the operation of the Level 3 CDN, Hulu has knowledge of the  
17 operations of the Level 3 CDN and the steps the Level 3 systems will perform in order to deliver  
18 content to Hulu's users. Hulu thus knowingly causes and specifically intends for Level 3 to perform  
19 those steps, or directs and controls Level 3's performance of those steps by means of at least its  
20 contractual relationship with Level 3 and by configuring and customizing Level 3's CDN.

21 147. For instance, Hulu contracts or has contracted with Level 3 knowing that when at  
22 least certain Hulu users request a '796 Services live stream, the request is routed to a Level 3 edge  
23 server, which receives the request, and that the Level 3 edge server allocates a local buffer to store  
24 portions of the stream. Hulu contracts with Level 3 also knowing that when a second user requests  
25 the same video stream, the Level 3 edge server will provide the stream from the same local buffer,  
26 because Level 3's edge servers serve the second request from the same local buffer because doing so  
27 saves space and bandwidth. Hulu's contract with Level 3 thus implicitly or explicitly directs and  
28 controls Level 3 to serve a second request for the same stream from the same local buffer. Because

1 the Level 3 edge server already has the requested stream in a local buffer, it takes less time to send it  
 2 to the second user.

3 148. Hulu directly infringes one or more claims of the '796 patent (including at least claim  
 4 27) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing  
 5 and/or controlling at least the performance of the claimed steps by Akamai, Limelight, and Level 3  
 6 to infringe the '796 patent to deliver the '796 Services.

7 149. For example, Hulu has directly infringed, and continues to directly infringe, claim 27  
 8 of the '796 patent under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at  
 9 least by directing and/or controlling Akamai (through at least contracting with Akamai and  
 10 customizing the Akamai CDN) to infringe claim 27 by using, in a network having a content server  
 11 (such as a web content server) which hosts a plurality of live SM broadcast objects (such as live  
 12 video) for distribution over said network through a plurality of HSs (such as Akamai's edge servers)  
 13 to a plurality of clients (such as Hulu's users), a method of reducing start-up latency associated with  
 14 distributing said plurality of live SM broadcast objects from said content server and said plurality of  
 15 HSs to said plurality of clients. Further:

16 a. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
 17 and/or its configuration and customization of Akamai's CDN, to receive a first request for one of  
 18 said plurality of live SM broadcast objects at one of said plurality of HSs (such as by directing  
 19 and/or controlling Akamai to receive a first request from a Hulu user to watch a live video at one of  
 20 Akamai's edge servers);

21 b. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
 22 and/or its configuration and customization of Akamai's CDN, to service said first request from a non  
 23 pre-configured playout history ("PH") buffer (such as by directing and/or controlling Akamai to  
 24 contact a content server, retrieve and cache the requested MPEG-DASH or HLS segments at the  
 25 Akamai edge server in a local buffer, and deliver the requested content to the client) at a first data  
 26 rate;

27 c. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
 28 and/or its configuration and customization of Akamai's CDN, to receive a second request for said

1 one of said plurality of live SM broadcast objects at said one of said plurality of HSs (such as by  
2 directing and/or controlling Akamai to receive a second request for the same MPEG-DASH or HLS  
3 segments at the Akamai edge server); and

4                   d. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
5 and/or its configuration and customization of Akamai's CDN, to partially service said second request  
6 from said non pre-configured PH buffer (such as by directing and/or controlling Akamai to deliver  
7 the requested MPEG-DASH or HLS segments to the client from the same local buffer on the  
8 Akamai edge server) at a second data rate, wherein said second data rate is higher than said first data  
9 rate.

10               150. As a further example, Hulu also has directly infringed, and continues to directly  
11 infringe, one or more claims of the '796 patent (including at least claim 27) under 35 U.S.C.  
12 § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling  
13 Limelight (through at least contracting with Limelight and customizing the Limelight CDN) to  
14 infringe the '796 patent to deliver the '796 Services. For example, Hulu has directly infringed, and  
15 continues to directly infringe, claim 27 by using, in a network having a content server (such as a web  
16 content server) which hosts a plurality of live SM broadcast objects (such as live video) for  
17 distribution over said network through a plurality of HSs (such as Limelight's edge servers) to a  
18 plurality of clients (such as Hulu's users), a method of reducing start-up latency associated with  
19 distributing said plurality of live SM broadcast objects from said content server and said plurality of  
20 HSs to said plurality of clients. Further:

21                   a. Hulu directs and/or controls Limelight, at least via its contract with Limelight  
22 and/or its configuration and customization of Limelight's CDN, to receive a first request for one of  
23 said plurality of live SM broadcast objects at one of said plurality of HSs (such as by directing  
24 and/or controlling Limelight to receive a first request from a Hulu user to watch a live video at one  
25 of Limelight's edge servers);

26                   b. Hulu directs and/or controls Limelight, at least via its contract with Limelight  
27 and/or its configuration and customization of Limelight's CDN, to service said first request from a  
28 non pre-configured PH buffer (such as by directing and/or controlling Limelight to contact a content

1 server, retrieve and cache the requested MPEG-DASH or HLS segments at the Limelight edge  
 2 server in a local buffer, and deliver the requested content to the client) at a first data rate;

3                   c.     Hulu directs and/or controls Limelight, at least via its contract with Limelight  
 4 and/or its configuration and customization of Limelight's CDN, to receive a second request for said  
 5 one of said plurality of live SM broadcast objects at said one of said plurality of HSs (such as by  
 6 directing and/or controlling Limelight to receive a second request for the same MPEG-DASH or  
 7 HLS segments at the Limelight edge server); and

8                   d.     Hulu directs and/or controls Limelight, at least via its contract with Limelight  
 9 and/or its configuration and customization of Limelight's CDN, to partially service said second  
 10 request from said non pre-configured PH buffer (such as by directing and/or controlling Limelight to  
 11 deliver the requested MPEG-DASH or HLS segments to the client from the same local buffer on the  
 12 Limelight edge server) at a second data rate, wherein said second data rate is higher than said first  
 13 data rate.

14       151.    As a further example, Hulu also has directly infringed, and continues to directly  
 15 infringe, one or more claims of the '796 patent (including at least claim 27) under 35 U.S.C.  
 16 § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling  
 17 Level 3 (through at least contracting with Level 3 and customizing the Level 3 CDN) to infringe the  
 18 '796 patent to deliver the '796 Services. For example, Hulu has directly infringed, and continues to  
 19 directly infringe, claim 27 by using, in a network having a content server (such as a web content  
 20 server) which hosts a plurality of live SM broadcast objects (such as live video) for distribution over  
 21 said network through a plurality of HSs (such as Level 3's edge servers) to a plurality of clients  
 22 (such as Hulu's users), a method of reducing start-up latency associated with distributing said  
 23 plurality of live SM broadcast objects from said content server and said plurality of HSs to said  
 24 plurality of clients. Further:

25                   a.     Hulu directs and/or controls Level 3, at least via its contract with Level 3  
 26 and/or its configuration and customization of Level 3's CDN, to receive a first request for one of  
 27 said plurality of live SM broadcast objects at one of said plurality of HSs (such as by directing

1 and/or controlling Level 3 to receive a first request from a Hulu user to watch a live video at one of  
 2 Level 3's edge servers);

3                   b.     Hulu directs and/or controls Level 3, at least via its contract with Level 3  
 4 and/or its configuration and customization of Level 3's CDN, to service said first request from a non  
 5 pre-configured PH buffer (such as by directing and/or controlling Level 3 to contact a content server,  
 6 retrieve and cache the requested MPEG-DASH or HLS segments at the Level 3 edge server in a  
 7 local buffer, and deliver the requested content to the client) at a first data rate;

8                   c.     Hulu directs and/or controls Level 3, at least via its contract with Level 3  
 9 and/or its configuration and customization of Level 3's CDN, to receive a second request for said  
 10 one of said plurality of live SM broadcast objects at said one of said plurality of HSs (such as by  
 11 directing and/or controlling Level 3 to receive a second request for the same MPEG-DASH or HLS  
 12 segments at the Level 3 edge server); and

13                   d.     Hulu directs and/or controls Level 3, at least via its contract with Level 3  
 14 and/or its configuration and customization of Level 3's CDN, to partially service said second request  
 15 from said non pre-configured PH buffer (such as by directing and/or controlling Level 3 to deliver  
 16 the requested MPEG-DASH or HLS segments to the client from the same local buffer on the Level 3  
 17 edge server) at a second data rate, wherein said second data rate is higher than said first data rate.

18       152.    In addition or in the alternative, Hulu has induced infringement, and continues to  
 19 induce infringement, of one or more claims of the '796 patent under 35 U.S.C. § 271(b), literally  
 20 and/or under the doctrine of equivalents. Hulu has actively, knowingly, and intentionally induced  
 21 (and continues to induce) infringement of the '796 patent by making, using, offering for sale, selling,  
 22 supplying, maintaining, and/or supporting the '796 Services; by contracting with the CDNs and  
 23 customizing the CDNs with the specific intent to cause the CDNs to perform the steps claimed in the  
 24 '796 patent to deliver video data, including the '796 Services, to Hulu's users, and with the  
 25 knowledge that such actions infringe the '796 patent.

26       153.    For example, at least through repeated correspondence from Sound View, Hulu  
 27 knows that at least Akamai, Limelight, and Level 3 perform the claimed methods of the '796 patent,  
 28 and that Hulu induces the infringement of each of those CDNs. (See Exhibit H, incorporated herein

1 by reference.) Moreover, Hulu specifically intends that infringement, at least by continuing to  
 2 contract with and utilize the Akamai, Limelight, and Level 3 CDNs to offer the '796 Services;  
 3 configuring or customizing the Akamai, Limelight, and Level 3 CDNs to perform the claimed  
 4 methods of the '796 patent; and by encouraging and facilitating their infringement through the use of  
 5 the '796 Services by Hulu's users and/or the creation and dissemination of documentation related to  
 6 the '796 Services, including by, for example, encouraging and instructing its agents and contractors,  
 7 such as Akamai, Limelight, and Level 3, to provide video to Hulu's users through the '796 Services,  
 8 causing the performance of the claimed methods with the knowledge that such actions infringe the  
 9 '796 patent

10       154. For example, Hulu intends for and induces Akamai to infringe claim 27 to deliver the  
 11 '796 Services by using, in a network having a content server (such as a web content server) which  
 12 hosts a plurality of live SM broadcast objects (such as live video) for distribution over said network  
 13 through a plurality of HSs (such as Akamai's edge servers) to a plurality of clients (such as Hulu's  
 14 users), a method of reducing start-up latency associated with distributing said plurality of live SM  
 15 broadcast objects from said content server and said plurality of HSs to said plurality of clients, said  
 16 method comprising:

17           a. receiving a first request for one of said plurality of live SM broadcast objects  
 18 (such as a Hulu user requesting to watch a live video) at one of said plurality of HSs (such as the  
 19 Akamai edge servers);

20           b. servicing said first request from a non pre-configured PH buffer (such as by  
 21 contacting a content server, retrieving and caching the requested MPEG-DASH or HLS segments at  
 22 the Akamai edge server in a local buffer, and delivering the requested content to the client) at a first  
 23 data rate;

24           c. receiving a second request for said one of said plurality of live SM broadcast  
 25 objects at said one of said plurality of HSs (such as receiving a second request for the same MPEG-  
 26 DASH or HLS segments at the Akamai edge server); and

27           d. partially servicing said second request from said non pre-configured PH buffer  
 28 (such as by delivering the requested MPEG-DASH or HLS segments to the client from the same

1 local buffer on the Akamai edge server) at a second data rate, wherein said second data rate is higher  
2 than said first data rate.

3 155. As a further example, Hulu intends for and induces Limelight to infringe claim 27 to  
4 deliver the '796 Services by using, in a network having a content server (such as a web content  
5 server) which hosts a plurality of live SM broadcast objects (such as live video) for distribution over  
6 said network through a plurality of HSs (such as Limelight's edge servers) to a plurality of clients  
7 (such as Hulu's users), a method of reducing start-up latency associated with distributing said  
8 plurality of live SM broadcast objects from said content server and said plurality of HSs to said  
9 plurality of clients, said method comprising:

10 a. receiving a first request for one of said plurality of live SM broadcast objects  
11 (such as a Hulu user requesting to watch a live video) at one of said plurality of HSs (such as the  
12 Limelight edge servers);

13 b. servicing said first request from a non pre-configured PH buffer (such as by  
14 contacting a content server, retrieving and caching the requested MPEG-DASH or HLS segments at  
15 the Limelight edge server in a local buffer, and delivering the requested content to the client) at a  
16 first data rate;

17 c. receiving a second request for said one of said plurality of live SM broadcast  
18 objects at said one of said plurality of HSs (such as receiving a second request for the same MPEG-  
19 DASH or HLS segments at the Limelight edge server); and

20 d. partially servicing said second request from said non pre-configured PH buffer  
21 (such as by delivering the requested MPEG-DASH or HLS segments to the client from the same  
22 local buffer on the Limelight edge server) at a second data rate, wherein said second data rate is  
23 higher than said first data rate.

24 156. As a further example, Hulu intends for and induces Level 3 to infringe claim 27 to  
25 deliver the '796 Services by using, in a network having a content server (such as a web content  
26 server) which hosts a plurality of live SM broadcast objects (such as live video) for distribution over  
27 said network through a plurality of HSs (such as Level 3's edge servers) to a plurality of clients  
28 (such as Hulu's users), a method of reducing start-up latency associated with distributing said

1 plurality of live SM broadcast objects from said content server and said plurality of HSs to said  
2 plurality of clients, said method comprising:

3 a. receiving a first request for one of said plurality of live SM broadcast objects  
4 (such as a Hulu user requesting to watch a live video) at one of said plurality of HSs (such as the  
5 Level 3 edge servers);

6 b. servicing said first request from a non pre-configured PH buffer (such as by  
7 contacting a content server, retrieving and caching the requested MPEG-DASH or HLS segments at  
8 the Level 3 edge server in a local buffer, and delivering the requested content to the client) at a first  
9 data rate;

10 c. receiving a second request for said one of said plurality of live SM broadcast  
11 objects at said one of said plurality of HSs (such as receiving a second request for the same MPEG-  
12 DASH or HLS segments at the Level 3 edge server); and

13 d. partially servicing said second request from said non pre-configured PH buffer  
14 (such as by delivering the requested MPEG-DASH or HLS segments to the client from the same  
15 local buffer on the Level 3 edge server) at a second data rate, wherein said second data rate is higher  
16 than said first data rate.

17 157. Sound View has been and continues to be damaged by Hulu's infringement of the  
18 '796 patent. Sound View is entitled to recover from Hulu the damages sustained by Sound View as  
19 a result of Hulu's wrongful acts in an amount adequate to compensate Sound View for Hulu's  
20 infringement subject to proof at trial.

21 158. In committing these acts of infringement, Hulu committed egregious misconduct  
22 including, for example, acting despite knowing that its actions constituted infringement of a valid  
23 patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of  
24 infringement of a valid and enforceable patent.

25 159. Hulu's infringement of the '796 patent was and is deliberate and willful, entitling  
26 Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in  
27 prosecuting this action under 35 U.S.C. § 285.

## COUNT SIX

## INFRINGEMENT OF THE '074 PATENT

160. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

161. The '074 patent generally relates to network systems, and more particularly to methods and systems for improving the caching of streaming multimedia data from a content provider over a network to a client.

162. The '074 patent is valid and enforceable.

163. At the time of the invention of the '074 patent, broadcasting of streaming multimedia over the Internet was becoming increasingly popular.

164. Streaming data involves sending a continuous transmission of data from the server to a client. The client computer begins to present the information as it arrives, rather than waiting for the entire data set to arrive before beginning the presentation of the data. The client computer creates a multimedia output from the received multimedia data. The advantage of streaming is that the client computer does not have to wait until all data is downloaded from the server before some of the data is processed and the multimedia output is created.

165. Problems arose when users began to expect instantaneous streaming data on demand, particularly for video data, because streaming multimedia objects were generally delivered over the Internet and other data networks via unicast connections. Such architectures had many shortcomings, both from the content provider's and user's points of view. For content providers, such architectures put increased demand on networks and servers, as the server load increased linearly with the number of clients. For users, there were often long delays between requesting the video content and the time when the video contact actually began playing (*i.e.*, high start-up latency) and unpredictable playback quality due to network congestion.

166. Web caching technology had been implemented on the Internet to reduce network load, server load, and high start-up latency. However, caching systems that existed at the time were restricted to supporting static web objects such as HTML documents or images, and did not adequately support streaming multimedia data such as video and audio streaming multimedia

1 objects. While larger objects could be broken into smaller pieces for caching, then-existing caching  
2 systems would treat different chunks of the same video object independently, rather than considering  
3 the logical relationship among the various pieces. Also, given the larger size of streaming  
4 multimedia objects relative to static web objects, streaming multimedia objects do not lend  
5 themselves to being cached in their entirety, as disk space limitations made it not feasible to  
6 statically store more than a few complete streaming multimedia objects.

7 167. The techniques described in the '074 patent solve that discrete computer-based  
8 problem and improve upon prior caching systems by providing novel systems and methods for  
9 supporting high quality streaming multimedia on a network that use helper servers that operate as  
10 caching and streaming agents inside the network. The helper servers implement several methods  
11 specifically designed to support streaming multimedia, including segmentation of streaming  
12 multimedia objects into smaller units, cooperation of the helper servers, and novel cache placement  
13 and replacement policies of the constituent units which make up the streaming multimedia objects.  
14 The helper servers reduce a content provider's memory and processing requirements by reducing the  
15 server load, reduce congestion problems, and reduce high start-up latency.

16 168. The CDNs, including Akamai, Limelight, Level 3, and Fastly, each support Hulu's  
17 delivery of video content, including at least Hulu and Hulu Plus (the "'074 Services"), to users using  
18 MPEG-DASH and/or HLS. Moreover, each of the CDNs openly advertises and promotes the use of  
19 those protocols to deliver video content to users. Knowing that each of the CDNs supports the  
20 delivery of video content using MPEG-DASH and/or HLS, and directing and controlling such  
21 support, Hulu delivers video streams to its users, including the '074 Services, using at least the  
22 Akamai, Limelight, Level 3, and Fastly CDNs.

23 169. Hulu contracts or has contracted with each of the CDNs, so that when at least certain  
24 Hulu end users request a stream, the CDN's edge server handling the request downloads portions of  
25 that stream (segments or chunks). Moreover, Hulu had and has the ability to configure and/or  
26 customize aspects of the operation of each of the CDNs in delivering content to its users. For  
27 example, Hulu can and has customized the operation of the Akamai CDN through configuration  
28 tools, such as Akamai's Luna Control Center. As a further example, Hulu can and has customized

1 the operation of the Limelight CDN through configuration tools, such as Limelight Control. As a  
2 further example, Hulu can and has customized the operation of the Level 3 CDN through  
3 configuration tools, such as Level 3 CDN Portal.

4 170. At least through contracting with Akamai and configuring and/or customizing aspects  
5 of the operation of the Akamai CDN, Hulu has knowledge of the operations of the Akamai CDN and  
6 the steps the Akamai systems will perform in order to deliver content to Hulu's users. Hulu thus  
7 knowingly causes and specifically intends for Akamai to perform those steps, or directs and controls  
8 Akamai's performance of these steps by means of its contractual relationship with Akamai and by  
9 configuring and customizing Akamai's CDN.

10 171. For example, Hulu contracts with Akamai knowing that when at least certain Hulu  
11 end users request a stream, Akamai's edge server handling the request downloads portions of that  
12 stream (segments or chunks), and that the Akamai edge server then attempts to store portions of the  
13 stream. Hulu knows and intends for the Akamai edge server to store data in the buffer in order so  
14 that its end users can receive content with a lower latency.

15 172. The Akamai edge server utilizes caching algorithms to determine if there is sufficient  
16 disk space to store the requested portions. Hulu intends for and induces Akamai to determine if  
17 there is sufficient disk space because the Akamai edge server will not be able to store portions of a  
18 stream if there is insufficient space, resulting in service interruption to Hulu's end users.

19 173. Akamai advertises that if there is insufficient disk space at an Akamai edge server,  
20 the Akamai edge server will delete the least recently used chunks of various streams stored on the  
21 server rather than delete all of any one stream's content. Akamai's edge servers delete the least  
22 recently used chunks of various streams in order to conserve bandwidth. Hulu's contract with  
23 Akamai thus explicitly or implicitly directs and/or controls Akamai to delete the least recently used  
24 chunks. Hulu intends for and induces Akamai to delete the least recently used chunks of various  
25 streams in order to, among other things, more efficiently utilize disk space on the Akamai edge  
26 server, reducing Hulu's costs.

27 174. As a further example, at least through contracting with Limelight and configuring  
28 and/or customizing aspects of the operation of the Limelight CDN, Hulu has knowledge of the

1 operations of the Limelight CDN and the steps the Limelight systems will perform in order to deliver  
2 content to Hulu's users. Hulu thus knowingly causes and specifically intends for Limelight to  
3 perform those steps, or directs and controls Limelight's performance of those steps by means of its  
4 contractual relationship with Limelight and by configuring and customizing Limelight's CDN.

5 175. For instance, Hulu contracts with Limelight so that when at least certain Hulu end  
6 users request a stream, the Limelight edge server handling the request downloads portions of that  
7 stream (segments or chunks). The Limelight edge server then attempts to store portions of the  
8 stream. Hulu intends for the Limelight edge server to store data in the buffer in order so that its end  
9 users can receive content with a lower latency.

10 176. The Limelight edge server utilizes caching algorithms to determine if there is  
11 sufficient disk space to store the requested portions. Hulu intends for and induces Limelight to  
12 determine if there is sufficient disk space because the Limelight edge server will not be able to store  
13 portions of a stream if there is insufficient space, resulting in service interruption to Hulu's end  
14 users.

15 177. Limelight advertises that if there is insufficient disk space at a Limelight edge server,  
16 the Limelight edge server will delete the least recently used chunks of various streams stored on the  
17 server rather than delete all of any one stream's content. Limelight's edge servers delete the least  
18 recently used chunks of various streams in order to conserve bandwidth. Hulu's contract with  
19 Limelight thus explicitly or implicitly directs and/or controls Limelight to delete the least recently  
20 used chunks. Hulu intends for and induces Limelight to delete the least recently used chunks of  
21 various streams in order to, among other things, more efficiently utilize disk space on the Limelight  
22 edge server, reducing Hulu's costs.

23 178. As a further example, at least through contracting with Level 3 and configuring  
24 and/or customizing aspects of the operation of the Level 3 CDN, Hulu has knowledge of the  
25 operations of the Level 3 CDN and the steps the Level 3 systems will perform in order to deliver  
26 content to Hulu's users. Hulu thus knowingly causes and specifically intends for Level 3 to perform  
27 those steps, or directs and controls Level 3's performance of those steps by means of its contractual  
28 relationship with Level 3 and by configuring and customizing Level 3's CDN.

1       179. For instance, Hulu contracts with Level 3 so that when at least certain Hulu end users  
2 request a stream, the Level 3 edge server handling the request downloads portions of that stream  
3 (segments or chunks).

4       180. The Level 3 edge server then attempts to store portions of the stream. Hulu intends  
5 for the Level 3 edge server to store data in the buffer in order so that its end users can receive  
6 content with a lower latency.

7       181. The Level 3 edge server utilizes caching algorithms to determine if there is sufficient  
8 disk space to store the requested portions. Hulu intends for and induces Level 3 to determine if there  
9 is sufficient disk space because the Level 3 edge server will not be able to store portions of a stream  
10 if there is insufficient space, resulting in service interruption to Hulu's end users.

11       182. Level 3 advertises that if there is insufficient disk space at a Level 3 edge server, the  
12 Level 3 edge server will delete the least recently used chunks of various streams stored on the server  
13 rather than delete all of any one stream's content. Level 3's edge servers delete the least recently  
14 used chunks of various streams in order to conserve bandwidth. Hulu's contract with Level 3 thus  
15 explicitly or implicitly directs and/or controls Level 3 to delete the least recently used chunks. Hulu  
16 intends for and induces Level 3 to delete the least recently used chunks of various streams in order  
17 to, among other things, more efficiently utilize disk space on the Level 3 edge server, reducing  
18 Hulu's costs.

19       183. Hulu directly infringes one or more claims of the '074 patent (including at least claim  
20 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing  
21 and/or controlling at least the performance of the claimed steps by Akamai, Limelight, and Level 3  
22 to infringe the '074 patent to deliver the '074 Services.

23       184. For example, Hulu has directly infringed, and continues to directly infringe, one or  
24 more claims of the '074 patent (including at least claim 9) under 35 U.S.C. § 271(a), literally and/or  
25 under the doctrine of equivalents, at least by directing and/or controlling Akamai (through at least  
26 contracting with Akamai and configuring the Akamai CDN) to infringe claim 9 to deliver the '074  
27 Services by using a method for managing storage of a streaming media (SM) object (such as videos)  
28 in a network having a content server which hosts SM objects for distribution over said network

1 through a plurality of servers (such as Akamai's CDN with a plurality of edge servers) to a plurality  
2 of clients (such as Hulu's users). Further:

3 a. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
4 and/or its configuration and customization of Akamai's CDN, to receive said SM object (such as by  
5 directing and/or controlling Akamai to receive the requested portion of a video at an Akamai edge  
6 server);

7 b. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
8 and/or its configuration and customization of Akamai's CDN, to determine whether there is a disk  
9 space available on one of said plurality of servers (such as by directing and/or controlling Akamai to  
10 use a caching algorithm to determine whether sufficient disk space is available on a storage device  
11 on the Akamai edge server);

12 c. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
13 and/or its configuration and customization of Akamai's CDN, to store said SM object at said at least  
14 one HS if it is determined that there is sufficient disk space available (such as by directing and/or  
15 controlling Akamai to store the requested portion of the video on the Akamai edge server if it is  
16 determined that there is sufficient disk space available); and

17 d. Hulu directs and/or controls Akamai, at least via its contract with Akamai  
18 and/or its configuration and customization of Akamai's CDN, to, if it is determined that there is  
19 insufficient disk space available to store the received SM object, for each of a plurality of SM  
20 objects stored in said disk space, delete only a portion of said SM object (such as by directing and/or  
21 controlling Akamai to use a caching algorithm to delete the least recently used portion of a  
22 multimedia object from a storage device on the Akamai edge server), whereby the deletion of said  
23 portions of said SM objects results in sufficient disk space being available for storage of the received  
24 SM object.

25 185. As a further example, Hulu also has directly infringed, and continues to directly  
26 infringe, one or more claims of the '074 patent (including at least claim 9) under 35 U.S.C. § 271(a),  
27 literally and/or under the doctrine of equivalents, at least by directing and/or controlling Limelight  
28 (through at least contracting with Limelight and configuring the Limelight CDN) to infringe the '074

1 patent to deliver the '074 Services. For example, Hulu has directly infringed, and continues to  
2 directly infringe, claim 9 by using a method for managing storage of a streaming media (SM) object  
3 (such as videos) in a network having a content server which hosts SM objects for distribution over  
4 said network through a plurality of servers (such as Limelight's CDN with a plurality of edge  
5 servers) to a plurality of clients (such as Hulu's users). Further:

6 a. Hulu directs and/or controls Limelight, at least via its contract with Limelight  
7 and/or its configuration and customization of Limelight's CDN, to receive said SM object (such as  
8 by directing and/or controlling Limelight to receive the requested portion of a video at a Limelight  
9 edge server);

10 b. Hulu directs and/or controls Limelight, at least via its contract with Limelight  
11 and/or its configuration and customization of Limelight's CDN, to determine whether there is a disk  
12 space available on one of said plurality of servers (such as by directing and/or controlling Limelight  
13 to use a caching algorithm to determine whether sufficient disk space is available on a storage device  
14 on the Limelight edge server);

15 c. Hulu directs and/or controls Limelight, at least via its contract with Limelight  
16 and/or its configuration and customization of Limelight's CDN, to store said SM object at said at  
17 least one HS if it is determined that there is sufficient disk space available (such as by directing  
18 and/or controlling Limelight to store the requested portion of the video on the Limelight edge server  
19 if it is determined that there is sufficient disk space available); and

20 d. Hulu directs and/or controls Limelight, at least via its contract with Limelight  
21 and/or its configuration and customization of Limelight's CDN, to, if it is determined that there is  
22 insufficient disk space available to store the received SM object, for each of a plurality of SM  
23 objects stored in said disk space, delete only a portion of said SM object (such as by directing and/or  
24 controlling Limelight to use a caching algorithm to delete the least recently used portion of a  
25 multimedia object from a storage device on the Limelight edge server), whereby the deletion of said  
26 portions of said SM objects results in sufficient disk space being available for storage of the received  
27 SM object.

1       186. As a further example, Hulu also has directly infringed, and continues to directly  
2 infringe, one or more claims of the '074 patent (including at least claim 9) under 35 U.S.C. § 271(a),  
3 literally and/or under the doctrine of equivalents, at least by directing and/or controlling Level 3  
4 (through at least contracting with Level 3 and customizing the Level 3 CDN) to infringe the '074  
5 patent to deliver the '074 Services. For example, Hulu has directly infringed, and continues to  
6 directly infringe, claim 9 by using a method for managing storage of a streaming media (SM) object  
7 (such as videos) in a network having a content server which hosts SM objects for distribution over  
8 said network through a plurality of servers (such as Level 3's CDN with a plurality of edge servers)  
9 to a plurality of clients (such as Hulu's users). Further:

10           a. Hulu directs and/or controls Level 3, at least via its contract with Level 3  
11 and/or its configuration and customization of Level 3's CDN, to receive said SM object (such as by  
12 directing and/or controlling Level 3 to receive the requested portion of a video at a Level 3 edge  
13 server);

14           b. Hulu directs and/or controls Level 3, at least via its contract with Level 3  
15 and/or its configuration and customization of Level 3's CDN, to determine whether there is a disk  
16 space available on one of said plurality of servers (such as by directing and/or controlling Level 3 to  
17 use a caching algorithm to determine whether sufficient disk space is available on a storage device  
18 on the Level 3 edge server);

19           c. Hulu directs and/or controls Level 3, at least via its contract with Level 3  
20 and/or its configuration and customization of Level 3's CDN, to store said SM object at said at least  
21 one HS if it is determined that there is sufficient disk space available (such as by directing and/or  
22 controlling Level 3 to store the requested portion of the video on the Level 3 edge server if it is  
23 determined that there is sufficient disk space available); and

24           d. Hulu directs and/or controls Level 3, at least via its contract with Level 3  
25 and/or its configuration and customization of Level 3's CDN, to, if it is determined that there is  
26 insufficient disk space available to store the received SM object, for each of a plurality of SM  
27 objects stored in said disk space, delete only a portion of said SM object (such as by directing and/or  
28 controlling Level 3 to use a caching algorithm to delete the least recently used portion of a

1 multimedia object from a storage device on the Level 3 edge server), whereby the deletion of said  
 2 portions of said SM objects results in sufficient disk space being available for storage of the received  
 3 SM object.

4       187. In addition or in the alternative, Hulu has induced infringement, and continues to  
 5 induce infringement, of one or more claims of the '074 patent under 35 U.S.C. § 271(b), literally  
 6 and/or under the doctrine of equivalents. Hulu has actively, knowingly, and intentionally induced  
 7 (and continues to induce) infringement of the '074 patent by making, using, offering for sale, selling,  
 8 supplying, maintaining, and/or supporting the '074 Services; by contracting with the CDNs and  
 9 configuring the CDNs with the specific intent to cause the CDNs to perform the steps claimed in the  
 10 '074 patent to deliver the '074 Services to Hulu's users, and with the knowledge that such actions  
 11 infringe the '074 patent.

12       188. For example, at least through repeated correspondence from Sound View, Hulu  
 13 knows that at least Akamai performs the claimed methods of the '074 patent, and that Hulu induces  
 14 the infringement of that CDN. (See Exhibit H, incorporated herein by reference.) Moreover, Hulu  
 15 specifically intends that infringement, at least by continuing to contract with and utilize the Akamai  
 16 CDN, as well as the Limelight and Level 3 CDNs, to offer the '074 Services; configuring or  
 17 customizing the Akamai, Limelight, and Level 3 CDNs to perform the claimed methods of the '074  
 18 patent; and by encouraging and facilitating their infringement through the use of the '074 Services  
 19 by Hulu's users and/or the creation and dissemination of documentation related to the '074 Services,  
 20 including by, for example, encouraging and instructing its agents and contractors, such as Akamai,  
 21 Limelight, and Level 3, to provide video to Hulu's users through the '074 Services, causing the  
 22 performance of the claimed methods with the knowledge that such actions infringe the '074 patent.

23       189. For example, Hulu intends for and induces Akamai to infringe claim 9 to deliver the  
 24 '074 Services by using a method for managing storage of a SM object (such as videos) in a network  
 25 having a content server which hosts SM objects for distribution over said network through a plurality  
 26 of servers (such as Akamai's CDN with a plurality of edge servers) to a plurality of clients (such as  
 27 Hulu's users), said method comprising

1                   a. receiving said SM object (such as the Akamai edge server retrieving the  
 2 requested portion of a video);

3                   b. determining whether there is a disk space available on one of said plurality of  
 4 servers (such as by using a caching algorithm to determine whether sufficient disk space is available  
 5 on a storage device on the Akamai edge server);

6                   c. storing said SM object at said at least one HS if it is determined that there is  
 7 sufficient disk space available (such as by storing the requested portion of the video on the Akamai  
 8 edge server if it is determined that there is sufficient disk space available); and

9                   d. if it is determined that there is insufficient disk space available to store the  
 10 received SM object, for each of a plurality of SM objects stored in said disk space, deleting only a  
 11 portion of said SM object (such as by using a caching algorithm to delete the least recently used  
 12 portion of a multimedia object from a storage device on the Akamai edge server), whereby the  
 13 deletion of said portions of said SM objects results in sufficient disk space being available for  
 14 storage of the received SM object.

15                 190. As a further example, Hulu intends for and induces Limelight to infringe claim 9 to  
 16 deliver the '074 Services by using a method for managing storage of a SM object (such as videos) in  
 17 a network having a content server which hosts SM objects for distribution over said network through  
 18 a plurality of servers (such as Limelight's CDN with a plurality of edge servers) to a plurality of  
 19 clients (such as Hulu's users), said method comprising

20                   a. receiving said SM object (such as the Limelight edge server retrieving the  
 21 requested portion of a video);

22                   b. determining whether there is a disk space available on one of said plurality of  
 23 servers (such as by using a caching algorithm to determine whether sufficient disk space is available  
 24 on a storage device on the Limelight edge server);

25                   c. storing said SM object at said at least one HS if it is determined that there is  
 26 sufficient disk space available (such as by storing the requested portion of the video on the Limelight  
 27 edge server if it is determined that there is sufficient disk space available); and

d. if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, deleting only a portion of said SM object (such as by using a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Limelight edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

191. As a further example, Hulu intends for and induces Level 3 to infringe claim 9 to deliver the '074 Services by using a method for managing storage of a SM object (such as videos) in a network having a content server which hosts SM objects for distribution over said network through a plurality of servers (such as Level 3's CDN with a plurality of edge servers) to a plurality of clients (such as Hulu's users), said method comprising

a. receiving said SM object (such as the Level 3 edge server retrieving the requested portion of a video);

b. determining whether there is a disk space available on one of said plurality of servers (such as by using a caching algorithm to determine whether sufficient disk space is available on a storage device on the Level 3 edge server);

c. storing said SM object at said at least one HS if it is determined that there is sufficient disk space available (such as by storing the requested portion of the video on the Level 3 edge server if it is determined that there is sufficient disk space available); and

d. if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, deleting only a portion of said SM object (such as by using a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Level 3 edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

192. Sound View has been and continues to be damaged by Hulu's infringement of the '074 patent. Sound View is entitled to recover from Hulu the damages sustained by Sound View as

1 a result of Hulu's wrongful acts in an amount adequate to compensate Sound View for Hulu's  
2 infringement subject to proof at trial.

3 193. In committing these acts of infringement, Hulu committed egregious misconduct  
4 including, for example, acting despite knowing that its actions constituted infringement of a valid  
5 patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of  
6 infringement of a valid and enforceable patent.

7 194. Hulu's infringement of the '074 patent was and is deliberate and willful, entitling  
8 Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in  
9 prosecuting this action under 35 U.S.C. § 285.

10 **RELIEF REQUESTED**

11 Wherefore, Sound View respectfully requests that this Court enter judgment against Hulu as  
12 follows:

- 13 a) that Hulu has infringed each of the Patents-In-Suit;
- 14 b) that Hulu's infringement of the '371, '133, '213, '796, and '074 patents is and has  
15 been willful;
- 16 c) that Sound View be awarded damages in accordance with 35 U.S.C. § 284, including  
17 trebled damages, and, if necessary to adequately compensate Sound View for Hulu's infringement,  
18 an accounting;
- 19 d) that this case is exceptional under 35 U.S.C. § 285;
- 20 e) that Sound View be awarded the attorney fees, costs, and expenses that it incurs in  
21 prosecuting this action; and
- 22 f) that Sound View be awarded such further relief at law or in equity as the Court deems  
23 just and proper.

24 **DEMAND FOR JURY TRIAL**

25 Sound View hereby demands trial by jury on all claims and issues so triable.

26

27

28

1 Dated: June 2, 2017

2 By: Benjamin T. Wang

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